JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE & TECHNOLOGY

SCHOOL OF BIOLOGICAL AND PHYSICAL SCIENCES

UNIVERSITY SPECIAL EXAMINATION FOR THE DEGREE OF BACHELOR OF EDUCATION SCIENCE AND BACHELOR OF BIOLOGICAL SCIENCES

FIRST YEAR SECOND SEMESTER, ACADEMIC YEAR 2020/2021

MAIN CAMPUS - REGULAR

COURSE CODE: **SBB 1102**

COURSE TITLE: **CELL BIOLOGY**

EXAM VENUE: **STREAM: (BSC /B.ED)**

DATE: **EXAM SESSION:**

TIME: 2 HOURS

Instructions:

1. **Answer ALL questions in Section A and Any two questions in Section B**
2. **Candidates are advised not to write on question paper**
3. **Candidates must hand in their answer booklets to the invigilator while in the examination room**

SECTION A: SHORT ANSWER QUESTIONS (30 MARKS)

1. State the 3 tenets of cell theory (3 marks)
2. List the different types of glycosylation patterns of proteins. (3 marks)
3. Define the term glycoprotein and name the organelle where glycosylation occurs (3 mark)
4. List the 3 major classes of filaments that make up the cytoskeleton. (3 marks)
5. List any 6 types models organisms used in cell biology, molecular biology and other areas of scientific research. (3 marks)
6. Name the distinguishing features of plant cells (3 marks)
7. Apart from the light microscope list any other 3 types of microscopes (3 marks)
8. Give the functions of cytosol, mitochondrion and ribosomes (3 marks)
9. List the functions of peroxisomes, lysosomes and endosomes (3 marks)
10. Describe how the three methods of cellular signaling by soluble extracellular molecules differ. (3 marks)

SECTION B: ESSAY QUESTIONS (40 MARKS)

11. Cells are either prokaryotic or eukaryotic. Describe this statement, similarities and differences between eukaryotic and prokaryotic cells with examples (20 marks).
12. Discuss how cells sense the presence of other cells and their environment (20 marks)
13. Describe how genetic information is passed on in dividing cells including DNA replication, transcription and translation. (20 marks)
14. The eukaryotic cell cycle consists of discrete phases with checkpoints. With the help of a diagram, describe this eukaryotic cell cycle with the proteins that control this process (20 marks)